# Appendix Q

# WETLAND SOILS EXAMINATION

**TIM**
**MILLER**
**ASSOCIATES, INC.**

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August 22, 2007

Mr. Don Cuomo, Wetland Inspector
Town of Southeast
161 Maple Road
Brewster, NY 10509

Re: Stateline Retail Center
Follow up Wetland Soils Examination

Dear Mr. Cuomo:

This letter is submitted in response to your request that we conduct additional wetland analysis in parts of the site that were mapped as having "Fredon silt loam" soils in the "Soil Survey for Putnam and Westchester Counties, New York", published by the Natural Resources Conservation Service (NRCS). Certified wetland scientists from TMA conducted additional soils testing and evaluation of vegetation of these areas on the Stateline site on July 17, 2007.

The following materials are attached for your review:

1. A soils map of the overall site, showing the areas of further investigation;
2. A map showing the location of the auger test holes;
3. Data sheets describing the soils and vegetation found in these areas;
4. A map showing additional areas of wetland that were delineated along the stream corridor;
5. A Custom Soil Resource Report for the site prepared by the Natural Resources Conservation Service, describing the typical characteristics of the soils observed.

As shown on the attached report, Fredon soils are typically found within and close to wetlands and stream corridors.

As shown on Figure 1, the soil survey shows mapped Fredon areas associated with the stream corridors in the eastern part of the parcel. In completing our delineation, we consistently found that the areas of suitable hydrology, soils and/or vegetation were limited to the immediate vicinity of the watercourses.

We acknowledge however, that the NRCS survey does show more extensive areas than those flagged. It is not unusual for these surveys to have a degree of error, with much of the survey technique involving interpretation of aerial photos or "windshield inspections". In past situations, we have found that these surveys can be off by more than 300 feet, or have extensive areas of "inclusions", i.e., soils in the same family group but with different characteristics.

In reviewing the delienation after a site walk with you and Theresa Ryan of InSite Engineering on July 3, we found several small additional areas along the lower section of the western watercourse that we also flagged (Figure 2). On July 17, 2007, we also looked at the larger area to the north and west of the western watercourse.

Fredon silt loam is described as “nearly level, very deep and poorly drained and somewhat poorly drained. It is in slight depressions in bench like areas along streams and in relatively flat areas underlain by deposits of sand or gravel.” The typical profile for Fredon loam is shown on Table 1.

| **Table 1** | | |
|---|---|---|
| **Depth** | **Color and composition** | **Munsell Color** |
| Surface layer (0 - 7 inches) | Very dark grayish brown silt loam | 10YR3/2 |
| Subsurface layer (7 - 10 inches) | Dark gray silt loam | 10YR4/1 |
| Subsoil (10 - 13 inches) | Grayish brown silt loam with light yellowish brown mottles | 10YR5/2 with 10YR6/4 |
| (13 to 16 inches) | Gray fine sandy loam with strong brown and light yellowish brown mottles | 10YR6/1 with 7.5YR4/6 |
| (16 - 20 inches) | Gray fine sandy loam with yellowish brown mottles | 10YR5/1 with 10YR5/4 |
| (20 to 24 inches) | Gray loamy sand with yellowish brown mottles | 10YR5/1 with 10YR5/4 |

Fredon loams are described as having a water table from 0.5 feet to 1.5 feet below the surface from October through June, and are moderately slow or moderately permeable in the surface layer and subsoil. Depth to bedrock is generally greater than 60 inches.

Common inclusions within the mapped Fredon loams are the poorly drained Leicester soils, moderately well drained Sutton soils, very poorly drained Palms soils, and the frequently flooded Fluvaquents and Udifluvents.

Site Soils Testing

As part of the additional site investigation on July 17, 2007, TMA wetland scientists completed auger tests at 14 different locations on either side of an existing stone wall (Figure 3), in the area between the open field to the south and Interstate Route 84 to the north. Each hole was dug to approximately 20 inches. The purpose of these observations was to record the existing soil profiles in these areas and compare them to the typical profile given for the Fredon loam, to determine if these areas would then qualify for coverage under the Town wetlands ordinance. The results of these test holes are recorded on the attached data sheets.

Conclusions

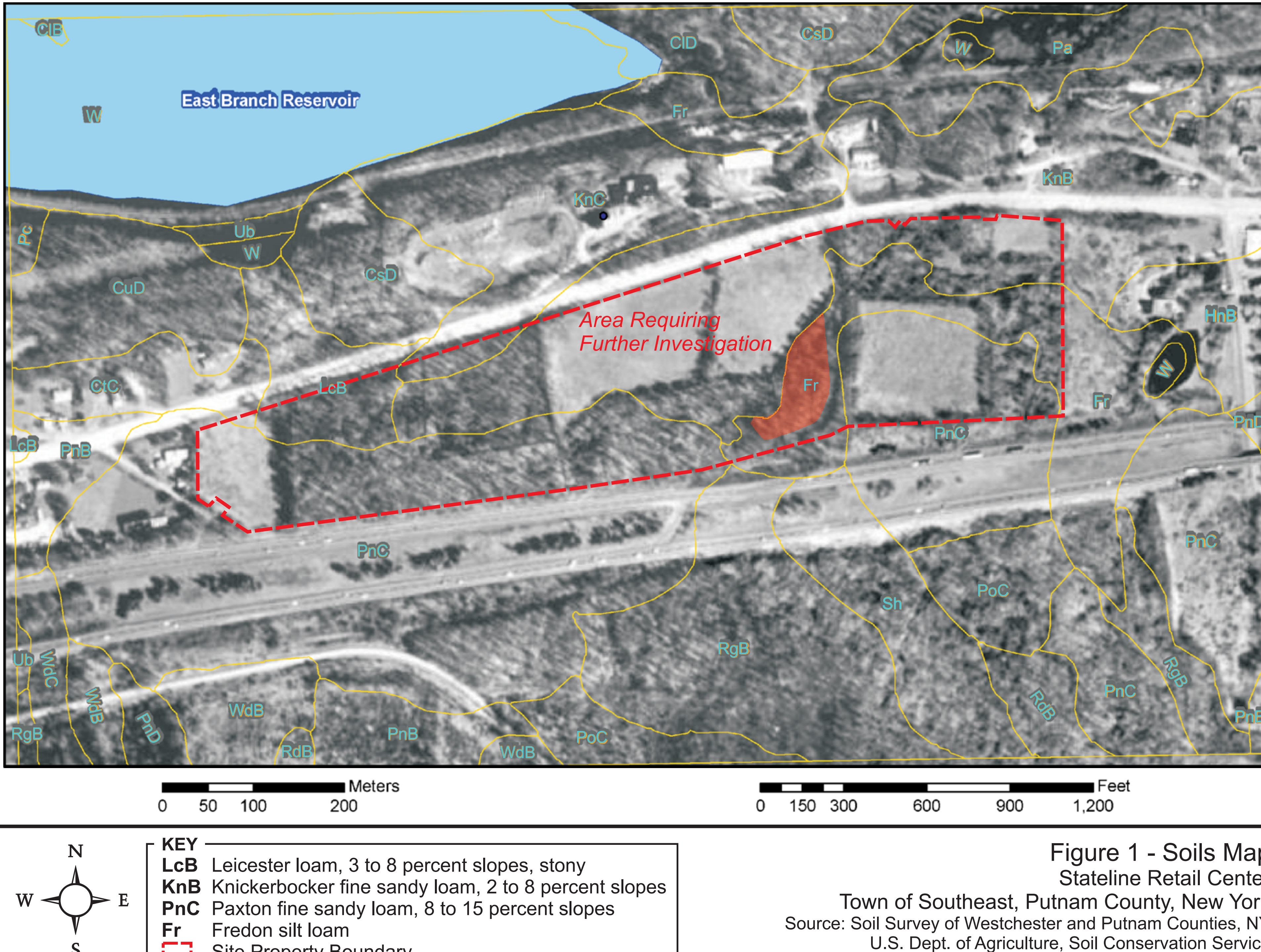
Site analysis confirmed that although this area of the Stateline site is mapped by the NRCS as Fredon silt loam, the predominant soil type is Sutton loam. Sutton loam is a common inclusion within areas mapped as Fredon silt loam. Sutton loam has a deeper seasonal high water table and higher permeability, with coarser subsoils and a deeper, browner surface layer. The vegetation observed in the area of each of the test holes also confirms that the duration and frequency of saturation does not exist to create a situation where the dominant vegetation species are wetland dependent. Sutton loam is not listed as a hydric soil and the area in question does not meet the definitions of a town regulated wetland.

Based on our conclusions, we request at this time that you finalize the confirmation of the wetland delineation for this proposal, and provide a letter or signed copy of the map to that effect. We are confident that the line as currently shown is representative of wetland conditions on the property and conforms with the Town Code. If you have any remaining questions about this testing or our conclusions, we would be happy to meet you on the site to review the report and the field conditions prior to final sign off.

Sincerely,

Steve Marino, PWS
Senior Wetland Scientist
TIM MILLER ASSOCIATES, INC.

c: F. Koelsch




**KEY**

**LcB** Leicester loam, 3 to 8 percent slopes, stony
**KnB** Knickerbocker fine sandy loam, 2 to 8 percent slopes
**PnC** Paxton fine sandy loam, 8 to 15 percent slopes
**Fr** Fredon silt loam
Site Property Boundary

# Figure 1 - Soils Map

Stateline Retail Center
Town of Southeast, Putnam County, New York
Source: Soil Survey of Westchester and Putnam Counties, NY
U.S. Dept. of Agriculture, Soil Conservation Service
Scale: Graphic

File 05065 1/9/07
JS/05065

*Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418*

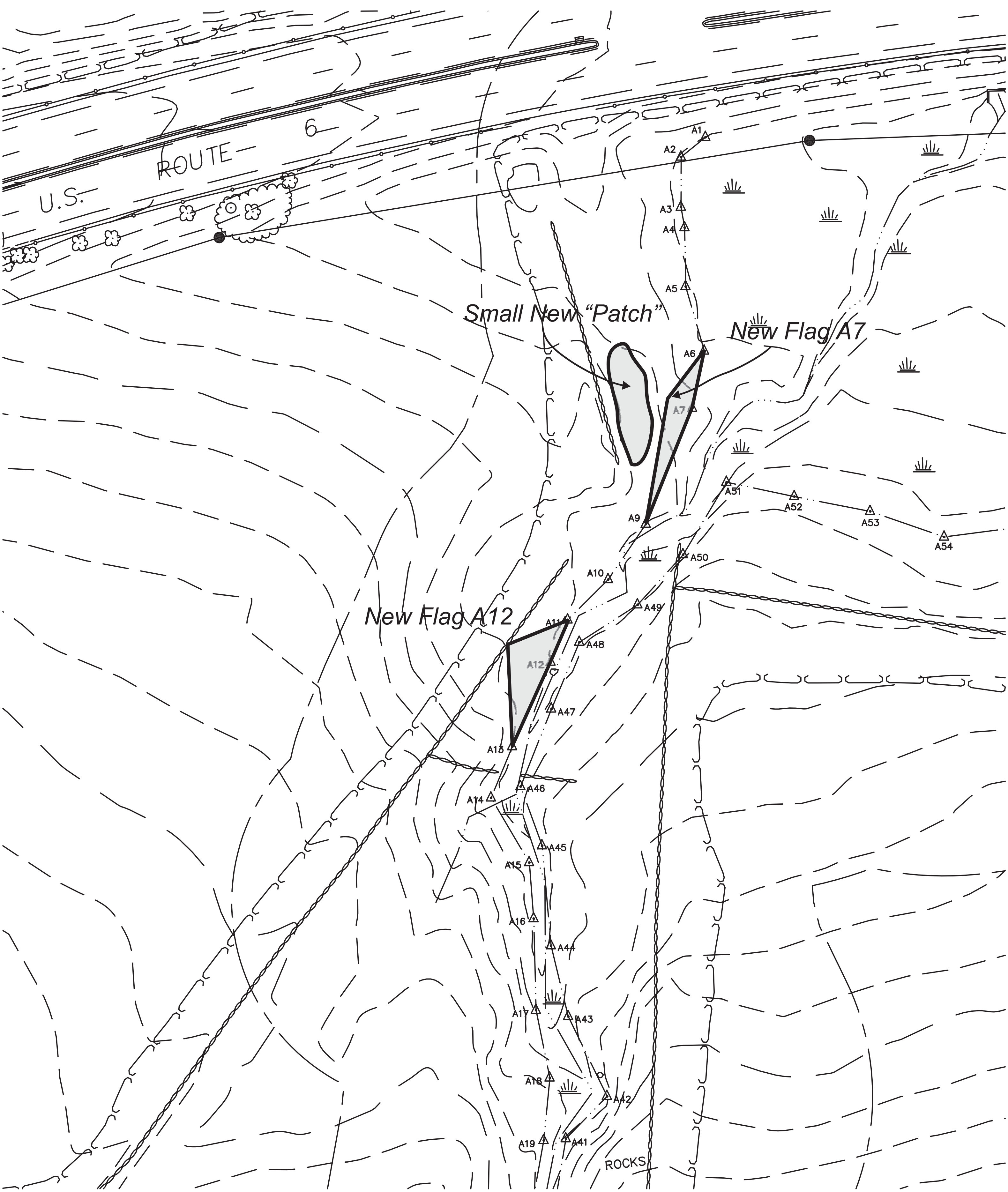



Figure 2 - Additional Wetland Area
Stateline Retail Center
Scale 1” = 60’

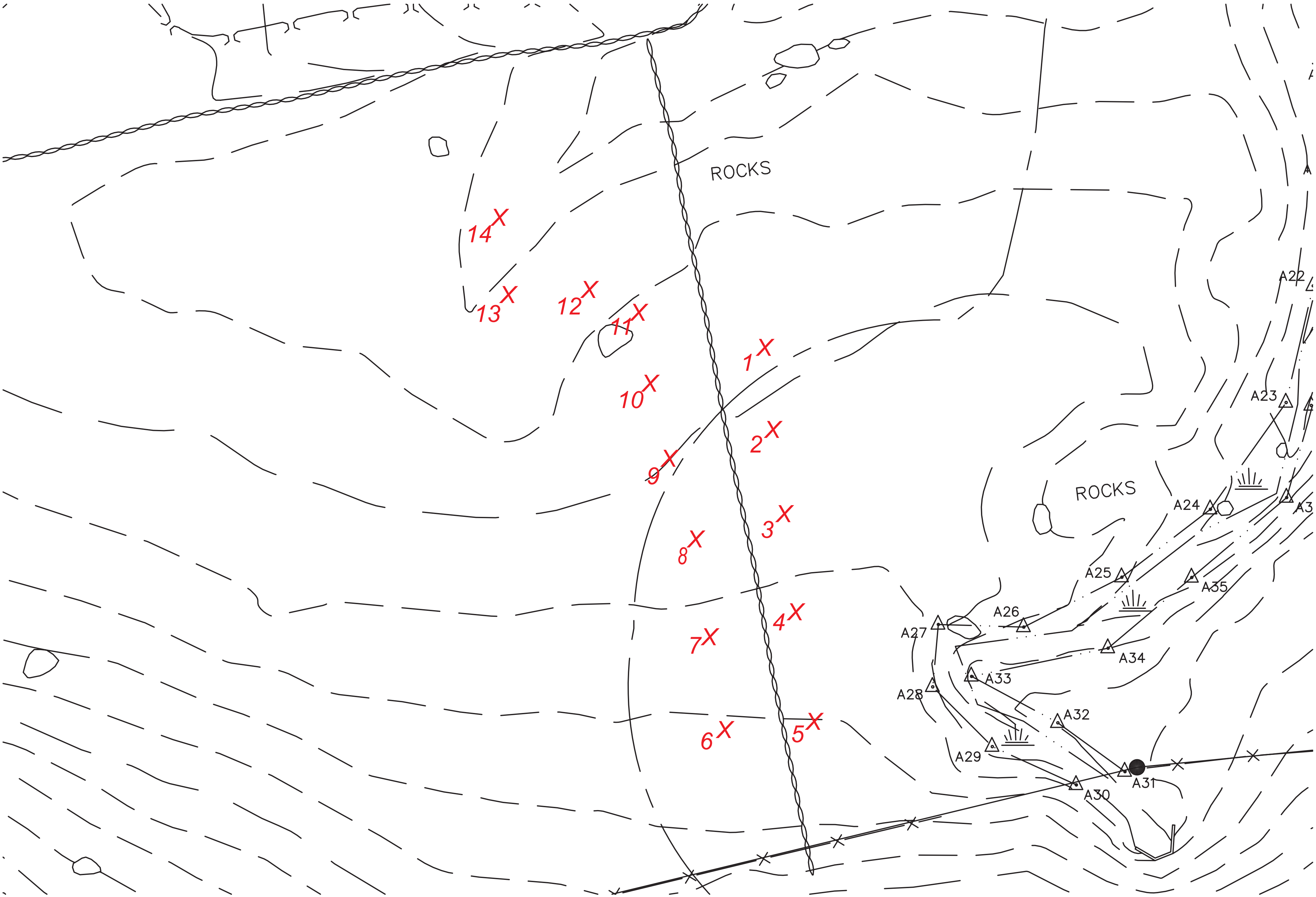



Figure 3 - Soil Boring Locations
Stateline Retail Center
Scale 1 " = 40'

STATE LINE SOIL INVESTIGATION

| | Date | Soil Depth (in) | Soil Color (Munsell) | Soil Composition |
|---|---|---|---|---|
| **Hole #1** | 7/17/07 | 0-8 | 10YR 3/2 | Sandy Loam |
| | | 8-14 | 10YR 5/3, 4/4, 5/2 no mottles | Sandy Loam |
| | | 14-20 | 2.5Y 5/3,5/4, 4/3 no mottles | Compacted Sandy Loam |
| **Vegetation Hole #1** | Poison Ivy<br>Virginia Creeper | Nanny Berry<br>Blackberry, Avens | Japanese Barberry,<br>Yellow Birch Sugar Maple | Jumpseed<br>Thistle<br>Garlic Mustard<br>Multirose |
| | | | | |
| | **Date** | **Soil Depth (in)** | **Soil Color (Munsell)** | **Soil Composition** |
| **Hole #2** | 7/17/07 | 0-11 | 10 YR 2/1 | Loamy Sand |
| | | 11-19 | 10YR 2/1 with 10YR4/4 and 2.5Y 6/2 mottles, very distinct | Silt Loam |
| | | 19-22 | 2.5Y 6/2 with 2.5Y 5/4 streaks | Silt Loam |
| **Vegetation Hole #2** | Poison Ivy<br>Virginia Creeper<br>Ash<br>Cherry | Nanny Berry<br>Blackberry, Avens | J barberry, Yellow Birch, Sugar Maple | Jumpseed<br>Thistle<br>Garlic Mustard<br>Multirose |
| | | | | |
| | **Date** | **Soil Depth (in)** | **Soil Color (Munsell)** | **Soil Composition** |
| **Hole #3** | 7/17/07 | 0-10 | 10YR 2/2 | Loam |
| | | 10-19 | 2.5Y 6/2 with 10YR 3/2 mottles | Loamy Sand |
| **Vegetation Hole #3** | Avens | Black Walnut<br>Slippery Elm | Garlic Mustard<br>Sugar Maple | VIRGINIA CREEPER<br>POISON IVY |
| | | | | |
| | **Date** | **Soil Depth (in)** | **Soil Color (Munsell)** | **Soil Composition** |
| **Hole #4** | 7/17/07 | 0-15 | 10YR 2/2 | Loam |
| | | 15-19 | 2.5Y 6/2 with 10YR 3/2 mottles Worm Holes | Loamy Sand |
| **Vegetation Hole #4** | Avens<br>Bittersweet | Black Walnut,<br>Slippery Elm | Garlic Mustard<br>Sugar Maple | VIRGINIA CREEPER<br>POISON IVY<br>Grass |
| | | | | |
| | **Date** | **Soil Depth (in)** | **Soil Color (Munsell)** | **Soil Composition** |
| **Hole #5** | 7/17/07 | 0-14 | 10 YR 2/1 | Loam |
| | | 14-21 | 2.5Y 6/2 with 10Yr 3/2 | Sandy Loam |
| **Vegetation Hole #5** | Avens<br>Bittersweet | Black Walnut<br>Slippery Elm | Garlic Mustard<br>Sugar Maple | VIRGINIA CREEPER<br>POISON IVY<br>Grass |
| | | | | |
| | | | | |

# STATE LINE SOIL INVESTIGATION

| | Date | Soil Depth (in) | Soil Color (Munsell) | Soil Composition |
|---|---|---|---|---|
| **Hole #6** | 7/17/07 | 0-14 | 10YR 2/1 | Loam |
| | | 14-19 | 10YR 4/6 | Sandy Loam |
| **Vegetation Hole #6** | Avens<br>Bittersweet | Black Walnut<br>Slippery Elm | Garlic Mustard<br>Sugar Maple | VIRGINIA CREEPER<br>POISON IVY<br>Grass |
| | | | | |
| | **Date** | **Soil Depth (in)** | **Soil Color (Munsell)** | **Soil Composition** |
| **Hole #7** | 7/17/07 | 0-10 | 10YR 2/1 | Loam |
| | | 10-18 | 10YR 5/4 | Sandy Loam |
| | | 18-21 | 10YR 4/2 and 10YR 2/1 | Sandy Loam |
| **Vegetation Hole #7** | Vege Avews<br>Bittersweet | Black Walnut<br>Slippery Elm | Garlic Mustard<br>Sugar Maple | VIRGINIA CREEPER<br>POISON IVY<br>Grass |
| | | | | |
| | **Date** | **Soil Depth (in)** | **Soil Color (Munsell)** | **Soil Composition** |
| **Hole #8** | 7/17/07 | 0-14 | 10YR 2/1 | Loam |
| | | 14-21 | 2.5Y 5/2 with 10YR 3/1 blocks | Loamy Sand |
| **Vegetation Hole #8** | Vege Avens | Black Walnut<br>Slippery Elm | Garlic Mustard<br>Sugar Maple | VIRGINIA CREEPER<br>POISON IVY |
| | | | | |
| | **Date** | **Soil Depth (in)** | **Soil Color (Munsell)** | **Soil Composition** |
| **Hole #9** | 7/17/07 | 0-12 | 10YR 2/1 | Loam |
| | | 12-19 | 10YR 5/4 | Sandy Loam |
| **Vegetation Hole #9** | Vege Aven | Black Walnut<br>Slippery Elm | Garlic Mustard<br>Sugar Maple | VIRGINIA CREEPER<br>POISON IVY |
| | | | | |
| | **Date** | **Soil Depth (in)** | **Soil Color (Munsell)** | **Soil Composition** |
| **Hole #10** | 7/17/07 | 0-7 | 10YR 2/1 | Loam |
| | | 7-14 | 10YR 6/2 with 10YR 3/2 mottles | Silt Loam |
| | | 14-17 | 2.5Y 5/3 with 10YR 4/4 mottles | Mottles |
| **Vegetation Hole#10** | Poison Ivy<br>Virginia Creeper<br>Jack in the Pulpit | Nanny Berry<br>Blackberry Avens | Jbarberry Yellow Birch<br>Sugar Maple | Jumpseed<br>Garlic Mustard<br>Multirose<br>Sensitive Fern |
| | | | | |
| | **Date** | **Soil Depth (in)** | **Soil Color (Munsell)** | **Soil Composition** |
| **Hole #11** | 7/17/07 | 0-9 | 10YR 2/2 | Loam |
| | | 9-12 | 10YR 3/2 and 10YR 3/3 | Loamy Sand |
| **Vegetation Hole#11** | VIRGINIA CREEPER<br>POISON IVY<br>Garlic Mustard | An Herbs<br>Multirose<br>Barberry<br>Sugar Maple | Jump Seed<br>Avens | Shrubs<br>Bittersweet<br>Slippery Elm<br>Ash |

# STATE LINE SOIL INVESTIGATION

| | Date | Soil Depth (in) | Soil Color (Munsell) | Soil Composition |
|---|---|---|---|---|
| **Hole #12** | 7/17/07 | 0-12 | 10YR 2/1 | Loam |
| | | 12-21 | 10YR 4/3 with 10YR2/1 blocks | Sandy Loam |
| **Vegetation Hole#12** | Sugar Maple | VIRGINIA CREEPER Multirose | POISON IVY | Barberry Bittersweet |
| | | | | |
| | **Date** | **Soil Depth (in)** | **Soil Color (Munsell)** | **Soil Composition** |
| **Hole #13** | 7/17/07 | 0-13 | 10YR 2/1 | Loam |
| | | 13-19 | 10YR 4/3 with 10YR2/1 blocks | Sandy Loam |
| | | 19-22 | 2.5Y 6/1 with 10YR 5/6 mottles | Sandy Loam |
| **Vegetation Hole#13** | Sugar Maple | VIRGINIA CREEPER Multirose | POISON IVY Nanny Berry | Barberry Bittersweet |

United States Department of Agriculture

NRCS

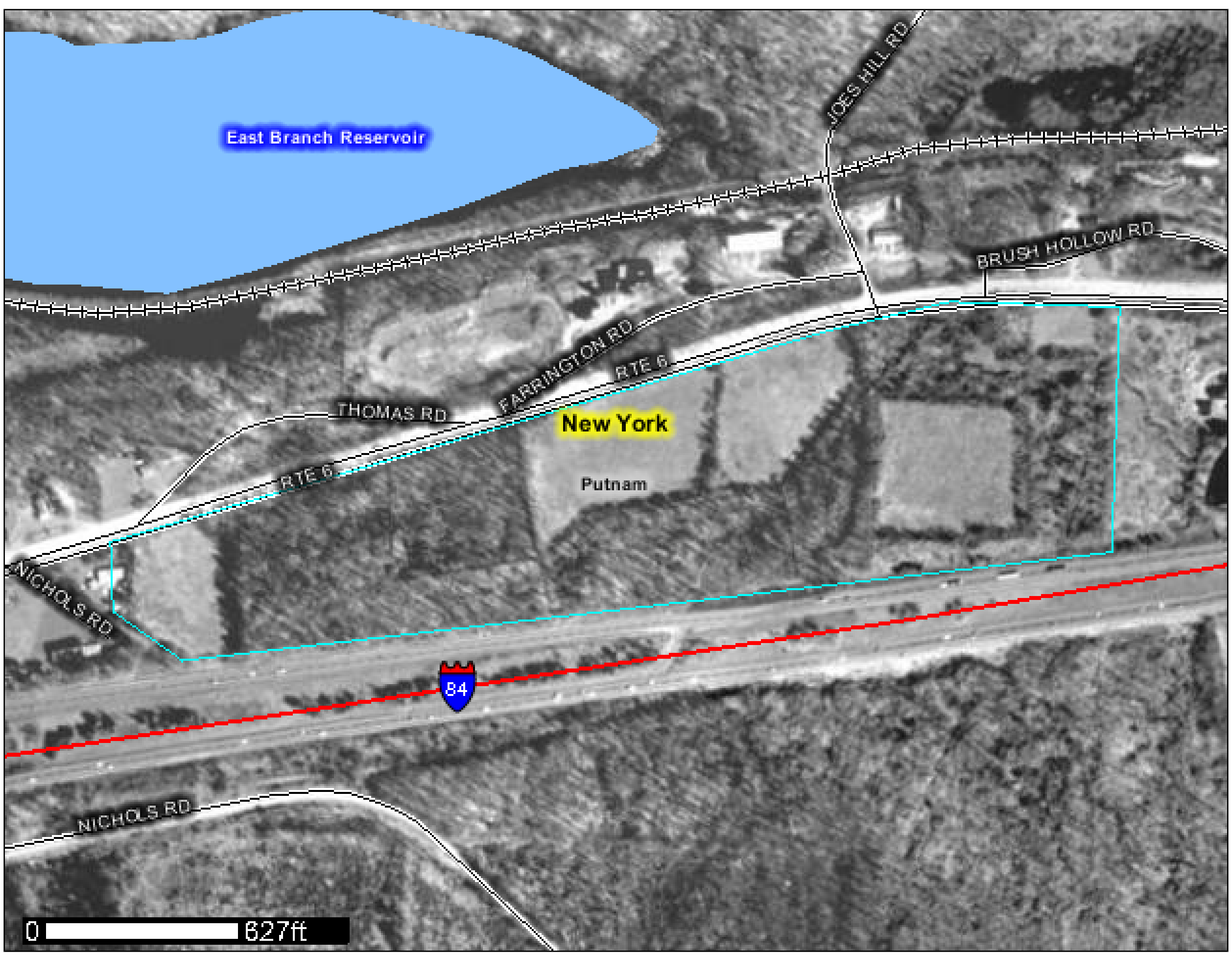
Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for

# Putnam County, New York

## Stateline Retail Center



# Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

# Contents

# How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map


BRUSH HOLLOW RD
RTE 6
JOES HILL RD
FARRINGTON RD
THOMAS RD
RTE 6
NICHOLS RD
NICHOLS RD
I84
KnB
KnC
LcB
CtC
PnC
Fr
RgB
PnC
N
Meters
0
100
200
400
600
Feet
0
400
800
1,600
2,400

Legend

## MAP LEGEND

**Area of Interest (AOI)**

Area of Interest (AOI)

**Soils**

Soil Map Units

**Special Point Features**

Blowout
Borrow Pit
Clay Spot
Closed Depression
Gravel Pit
Gravelly Spot
Landfill
Lava Flow
Marsh
Mine or Quarry
Miscellaneous Water
Perennial Water
Rock Outcrop
Saline Spot
Sandy Spot
Severely Eroded Spot
Sinkhole
Slide or Slip
Sodic Spot
Spoil Area
Stony Spot
Very Stony Spot
Wet Spot
Other

**Special Line Features**

Gully
Short Steep Slope
Other

**Political Features**

**Municipalities**

Cities
Urban Areas

**Water Features**

Oceans
Streams and Canals

**Transportation**

Rails

**Roads**

Interstate Highways
US Routes
State Highways
Local Roads
Other Roads

## MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 18N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Putnam County, New York
Survey Area Data: Version 5, Dec 11, 2006

Date(s) aerial images were photographed: 3/31/1991

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Putnam County, New York (NY079) | | | |
|---|---|---|---|
| **Map Unit Symbol** | **Map Unit Name** | **Acres in AOI** | **Percent of AOI** |
| CtC | Chatfield-Hollis-Rock outcrop complex, rolling | 0.2 | 0.4% |
| Fr | Fredon silt loam | 7.4 | 15.1% |
| KnB | Knickerbocker fine sandy loam, 2 to 8 percent slopes | 17.8 | 36.1% |
| KnC | Knickerbocker fine sandy loam, 8 to 15 percent slopes | 0.9 | 1.9% |
| LcB | Leicester loam, 3 to 8 percent slopes, stony | 2.6 | 5.2% |
| PnC | Paxton fine sandy loam, 8 to 15 percent slopes | 20.3 | 41.3% |
| RgB | Ridgebury loam, 2 to 8 percent slopes, very stony | 0.0 | 0.1% |
| Totals for Area of Interest (AOI) | | 49.2 | 100.0% |

# Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

# Putnam County, New York

## CtC—Chatfield-Hollis-Rock outcrop complex, rolling

### Map Unit Setting

*Elevation:* 100 to 1,000 feet
*Mean annual precipitation:* 46 to 50 inches
*Mean annual air temperature:* 46 to 52 degrees F
*Frost-free period:* 115 to 215 days

### Map Unit Composition

*Hollis and similar soils:* 30 percent
*Chatfield and similar soils:* 30 percent
*Rock outcrop:* 20 percent

### Description of Chatfield

#### Setting

*Landform:* Hills, ridges
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Crest
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Loamy till derived mainly from granite, gneiss, or schist

#### Properties and qualities

*Slope:* 3 to 15 percent
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Low to high (0.01 to 5.95 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 1 percent
*Available water capacity:* Low (about 3.2 inches)

#### Interpretive groups

*Land capability (nonirrigated):* 6s

#### Typical profile

*0 to 7 inches:* Loam
*7 to 24 inches:* Flaggy silt loam
*24 to 28 inches:* Unweathered bedrock

### Description of Hollis

#### Setting

*Landform:* Ridges, hills
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Crest
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* A thin mantle of loamy till derived mainly from schist, granite, and gneiss

**Properties and qualities**

*Slope:* 3 to 15 percent
*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock
*Drainage class:* Somewhat excessively drained
*Capacity of the most limiting layer to transmit water (Ksat):* Very low (0.00 to 0.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water capacity:* Very low (about 1.8 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 6s

**Typical profile**

*0 to 1 inches:* Fine sandy loam
*1 to 16 inches:* Fine sandy loam
*16 to 20 inches:* Unweathered bedrock

### Description of Rock Outcrop

**Properties and qualities**

*Slope:* 3 to 15 percent
*Depth to restrictive feature:* 0 inches to lithic bedrock
*Capacity of the most limiting layer to transmit water (Ksat):* Low to very high (0.01 to 19.98 in/hr)

**Interpretive groups**

*Land capability (nonirrigated):* 8s

## Fr—Fredon silt loam

### Map Unit Setting

*Elevation:* 250 to 1,200 feet
*Mean annual precipitation:* 46 to 50 inches
*Mean annual air temperature:* 46 to 52 degrees F
*Frost-free period:* 115 to 215 days

### Map Unit Composition

*Fredon and similar soils:* 80 percent

### Description of Fredon

**Setting**

*Landform:* Depressions
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Loamy over sandy and gravelly glaciofluvial deposits

**Properties and qualities**

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 1.98 in/hr)
*Depth to water table:* About 0 to 18 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 15 percent
*Available water capacity:* Low (about 5.3 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 3w

**Typical profile**

*0 to 7 inches:* Silt loam
*7 to 24 inches:* Fine sandy loam
*24 to 60 inches:* Stratified very gravelly loamy sand

## KnB—Knickerbocker fine sandy loam, 2 to 8 percent slopes

**Map Unit Setting**

*Elevation:* 100 to 800 feet
*Mean annual precipitation:* 46 to 50 inches
*Mean annual air temperature:* 46 to 52 degrees F
*Frost-free period:* 115 to 215 days

**Map Unit Composition**

*Knickerbocker and similar soils:* 75 percent

**Description of Knickerbocker**

**Setting**

*Landform:* Deltas, terraces
*Landform position (two-dimensional):* Summit
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Sandy glaciofluvial deposits or deltaic deposits

**Properties and qualities**

*Slope:* 2 to 8 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Somewhat excessively drained
*Capacity of the most limiting layer to transmit water (Ksat):* High (1.98 to 5.95 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water capacity:* Low (about 4.9 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 2s

**Typical profile**

*0 to 9 inches:* Fine sandy loam
*9 to 19 inches:* Fine sandy loam
*19 to 31 inches:* Loamy fine sand
*31 to 60 inches:* Loamy fine sand

## KnC—Knickerbocker fine sandy loam, 8 to 15 percent slopes

**Map Unit Setting**

*Elevation:* 100 to 800 feet
*Mean annual precipitation:* 46 to 50 inches
*Mean annual air temperature:* 46 to 52 degrees F
*Frost-free period:* 115 to 215 days

**Map Unit Composition**

*Knickerbocker and similar soils:* 75 percent

**Description of Knickerbocker**

**Setting**

*Landform:* Deltas, terraces
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Sandy glaciofluvial deposits or deltaic deposits

**Properties and qualities**

*Slope:* 8 to 15 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Somewhat excessively drained
*Capacity of the most limiting layer to transmit water (Ksat):* High (1.98 to 5.95 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water capacity:* Low (about 4.9 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 3e

**Typical profile**

*0 to 9 inches:* Fine sandy loam
*9 to 19 inches:* Fine sandy loam
*19 to 31 inches:* Loamy fine sand
*31 to 60 inches:* Loamy fine sand

## LcB—Leicester loam, 3 to 8 percent slopes, stony

**Map Unit Setting**

*Mean annual precipitation:* 46 to 50 inches
*Mean annual air temperature:* 46 to 52 degrees F
*Frost-free period:* 115 to 215 days

**Map Unit Composition**

*Leicester and similar soils:* 75 percent

**Description of Leicester**

**Setting**

*Landform:* Hills, ridges, till plains

*Landform position (two-dimensional):* Footslope, summit
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Linear
*Parent material:* Loamy acid till derived mostly from schist and gneiss

#### Properties and qualities

*Slope:* 3 to 8 percent
*Surface area covered with stones and boulders:* 0.1 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Somewhat poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 5.95 in/hr)
*Depth to water table:* About 6 to 18 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water capacity:* Moderate (about 7.7 inches)

#### Interpretive groups

*Land capability (nonirrigated):* 6s

#### Typical profile

*0 to 8 inches:* Loam
*8 to 26 inches:* Sandy loam
*26 to 60 inches:* Sandy loam

## PnC—Paxton fine sandy loam, 8 to 15 percent slopes

### Map Unit Setting

*Mean annual precipitation:* 46 to 50 inches
*Mean annual air temperature:* 46 to 52 degrees F
*Frost-free period:* 115 to 215 days

### Map Unit Composition

*Paxton and similar soils:* 75 percent

### Description of Paxton

#### Setting

*Landform:* Drumlinoid ridges, hills, till plains
*Landform position (two-dimensional):* Shoulder
*Landform position (three-dimensional):* Crest
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Acid loamy till derived mainly from crystalline rock

#### Properties and qualities

*Slope:* 8 to 15 percent
*Depth to restrictive feature:* 20 to 40 inches to dense material
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 18 to 30 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water capacity:* Low (about 6.0 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 3e

**Typical profile**

*0 to 10 inches:* Fine sandy loam
*10 to 20 inches:* Loam
*20 to 60 inches:* Gravelly sandy loam

## RgB—Ridgebury loam, 2 to 8 percent slopes, very stony

### Map Unit Setting

*Mean annual precipitation:* 46 to 50 inches
*Mean annual air temperature:* 46 to 52 degrees F
*Frost-free period:* 115 to 215 days

### Map Unit Composition

*Ridgebury and similar soils:* 75 percent

### Description of Ridgebury

**Setting**

*Landform:* Drumlinoid ridges, hills, till plains
*Landform position (two-dimensional):* Footslope, summit
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Concave
*Across-slope shape:* Linear
*Parent material:* Loamy till derived mainly from granite, gneiss, and schist

**Properties and qualities**

*Slope:* 2 to 8 percent
*Surface area covered with stones and boulders:* 1.6 percent
*Depth to restrictive feature:* 18 to 30 inches to dense material
*Drainage class:* Somewhat poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 6 to 18 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water capacity:* Low (about 4.4 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 7s

**Typical profile**

*0 to 8 inches:* Loam
*8 to 26 inches:* Gravelly fine sandy loam
*26 to 60 inches:* Gravelly loam

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# MEMO

**To:** Tim Miller Associates

**From:** Don Cuomo, BLU DOT INC.

**CC:** Southeast Planning Board, T. Fenton, S. O'Kane, J. Dunford, W. Stephens, Jr.

**Date:** 10/17/2007

**Re:** Stateline Retail Center, PROJECTLOCATION

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***Wetland Site Inspection per Chapter 78 "Freshwater & Wetlands Protection" §78-4.C.***

Introduction:

This Memo is submitted to inform the project applicant and applicable Town of Southeast board members and consultants of progress regarding the Wetland Permit Application for Stateline Retail Center. Acting as the Wetland Inspector for the Town of Southeast, BLU DOT INC. visited the Stateline project site on the morning of October 2nd, 2007. Also in attendance was the wetlands specialist, Jim Nash, of AKRF.

The purpose of this site visit was to verify the findings of a supplemental wetland soils memo (dated 8/22/07) received from the Applicant's Consultants, Tim Miller Associates (TMA). At issue is the presence of soils mapped as "hydric" (wetland) soils by the Natural Resources Conservation Service (NRCS) in the south/central portion of the project site which were not included in the Applicant's original wetland delineation completed for the Stateline Retail Center Draft Environmental Impact Statement prepared for the proposed Stateline Retail Center project.

Site inspection generally supports TMA's findings that, despite being mapped as hydric soil, field indicators of hydric soils are largely lacking throughout the majority of the area of concern. Therefore, this region cannot be considered wetland or a controlled area per Southeast Town Code §78-2.C,.

Findings:

Portions of the south-central project site are mapped as Fredon Loam (Fr) by the NRCS. This is a hydric soil that is referenced in the Town's wetlands ordinance as constituting regulated wetland (§78-2.A.(1)). TMA examined soil conditions in a portion of this area of mapped wetland soil adjacent to a southward-trending fieldstone wall. This area of soil inspection was verified and additional areas mapped as Fredon Loam (Fr) west of the wall were also examined by BDI and AKRF.

- Soils:
  Soil characteristics throughout this region show evidence of redox depletions/concentrations at a typical depth of 12-18 inches. The predominance of gravel/stone at or below the "B" horizon is a contributing factor accounting for slow percolation and buttressed rooting of overstory tree species. A limited area west of the fieldstone wall exhibits a sufficiently depleted soil matrix to satisfy USDA/NRCS criteria indicator "F3 - Depleted Matrix", thus qualifying as hydric soil. However, the majority of soil pits examined fall just short of this indicator, either due to soil chroma or depth of occurrence, and therefore do not meet the Federal definition of hydric soil.

- Vegetation:
  Although a comprehensive vegetation survey was not conducted, synoptic aerial coverage observations indicate a predominance of facultative and facultative wetland trees and shrubs. Therefore a majority of the area meets the Federal/State/Local vegetation criteria for regulated wetlands. Vegetation throughout the area of concern is a mix of facultative species including: green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), nannyberry (*Viburnum lentago*), sugar maple (*Acer saccharum*), clearweed (*Pilea pumila*), rough-stemmed goldenrod (*Solidago rugosa*), jumpseed (*Polygonum virginianum*), black walnut (*Juglans nigra*), garlic mustard (*Alliaria officinalis*), multiflora rose (*Rosa multiflora*), and Japanese barberry (*Berberis thunbergii*).

- Hydrology:
  Portions of the area of concern satisfy the Federal criteria for wetland hydrology as evidenced by drift lines, sediment deposits, drainage patterns, and water stained leaves. However, a majority of the area lacked clear evidence of wetland hydrology during the October 2nd site visit. Therefore, the Federal wetland hydrology criteria are not met for most of the area in question.

<u>Summary</u>:

The area examined does not meet the Federal wetland criteria in accordance with the Corps of Engineers Wetlands Delineation Manual (Y-87-1). Although one or more of the Federal wetland criteria are met in this region of the project site, overall there is no consistent or substantial area that meets all three Federal wetland parameters.

Although mapped by the NRCS as hydric soil, field examination did not find hydric soil indicators for the majority of this region. Therefore, it is reasonable to discount the NRCS mapped soils at this location and the applicable Town regulations with respect to listed hydric soils conferring wetland regulatory status.

Despite the prevalence of hydrophytic vegetation in much of the area, the region is interspersed with small patches of land dominated by upland vegetation - where such species as black locust, sugar maple, black walnut and domestic apple occur.

<u>Conclusion</u>:

The area in question is a moist (mesic) woodland showing evidence of surface and subsurface hydrology modified by former land uses and the construction of Route 84 to the south. Wetland indicators likely were more prevalent in the recent past and may account for its mapping as hydric soil by the NRCS and the continued dominance of hydrophytic vegetation especially in the older overstory stratum. We appreciate the timely response of the applicant's environmental consultants in following up on this matter and find that the wetland delineation as shown on Drawing SP-1 (dated 01-22-07), with the added inclusions noted (Figure 2) in the August 22nd, 2007 TMA memo, are an accurate demarcation of Town-regulated wetlands on the project site.

Regards,

BLU DOT INC.